

Dynamic Airspace Configuration Tool (DACT), Phase I

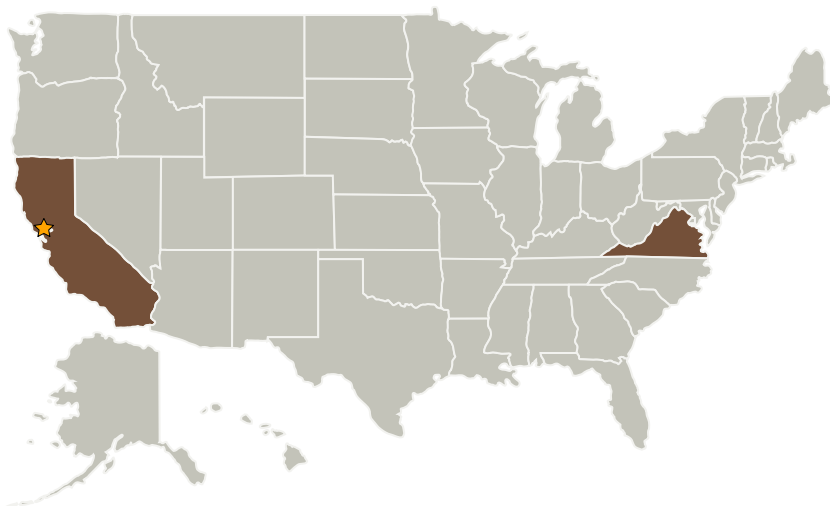
Completed Technology Project (2007 - 2007)



Project Introduction

Metron Aviation will develop optimization algorithms and an automated tool for performing dynamic airspace configuration under different operational scenarios. The Dynamic Airspace Configuration Tool (DACT) takes as an input the regularly updated projections of aggregated demand and weather forecasts and produces optimum airspace boundaries that balance the airspace complexity under various global and regional constraints for time horizons as short as four hours. The optimality criteria are defined separately for different levels of automation in Air Traffic Control (ATC) procedures. DACT enables the ATC managers to initiate high volume operational corridors and other classes of airspace to best serve the user demand for airspace resources. Additionally, when fully developed, DACT provides a capability for airspace managers to dynamically manage the allocation of Special Use Airspace (SUA) and Military Operation Airspace (MOA) to ensure security of the airspace system. DACT enables a more efficient utilization of airspace capacity and reduces the operational cost for air traffic control services by dynamically re-aligning the airspace boundaries to comply with the monthly, daily, and hourly alterations in user aggregated demand, route structures, and changes in weather patterns. DACT address one of the main components of NASA's NGATS Airspace effort in developing an operational framework for DAC concept that provides the air traffic service providers with a new degree of freedom to accommodate the user demand for airspace capacity, balanced against needs of national interest (e.g. security). The proposed effort will combine state of the art mathematical optimization techniques with ATC functional requirements necessary for development of the DAC concept.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Metron Aviation, Inc.	Supporting Organization	Industry	Dulles, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
 - └ TX16.4 Architectures and Infrastructure